

Amendments to the Specification:

This listing of paragraphs will replace all prior paragraphs in the application:

Listing of Paragraphs:

Please amend paragraph 19 as follows:

[0019] FIG. 1 is a flowchart illustrating one embodiment of the present method;

FIG. 2 is a flowchart illustrating another embodiment of the present method;

FIG. 3 is a flowchart illustrating yet another embodiment of the present method;

FIG. 4 is a flowchart illustrating yet another embodiment of the present method;

FIG. 5 is a flowchart illustrating yet another embodiment of the present method;

[and]

FIG. 6 is a flowchart illustrating yet another embodiment of the present method;[.]

FIG. 7 is a graph illustrating the prominent peaks in the FTIR spectra of the experimental data of the present method;

FIG. 8 is a graph illustrating the prominent peaks in the FTIR spectra of the experimental data of the present method; and

FIG. 9 is a graph illustrating the prominent peaks in the FTIR spectra of the experimental data of the present method.

Please add paragraph 59 as follows:

[0059] Figures 7 through 9 illustrate graphically that the peak for each prominent peak in the FTIR spectra of “polyol”, “polyurethane-containing material”, “suspension” of polyurethane-containing material in polyol, and “slurry” of polyurethane-containing material in polyol are almost identical while contrasting with the solution and DMSO.

The results as shown in Table 1 indicate that the "suspension" sample is chemically nearly identical to the "slurry" sample. These results are a further indication that there is little or no degradation of the "suspension" sample. Thus, when the polyurethane-containing material is dissolved in the solvent and then precipitated out by the polyol, there is little or no chemical degradation of the polyurethane-containing material.

Please change paragraphs 60 through 66 as follows:

[[0059]] [0060] The above discussion is exemplified in the examples set forth below. The examples set forth below are for illustrative purposes only and are in no way meant to limit the present invention.

Example 1

[[0060]] [0061] Flexible-slabstock polyurethane foam production scrap was obtained from trimming the skins from foam buns. The scrap contained small amounts of dense skin material and polyethylene film, with the balance being polyurethane foam of varying density. This scrap material was first reduced to pieces with a size of approximately 1 cm. The foam pieces were then comminuted using a two-roll mill, resulting in a fine powder. A 55-gram portion of the powder was dissolved in about 500 mL of dimethylsulfoxide (DMSO, C_2H_5SO) under a nitrogen atmosphere at about 130°C for about 120 minutes to produce a 605 grams of a homogeneous, transparent, single liquid phase with a concentration of about 9.1% polyurethane by weight in DMSO. The solution was cooled to about 40°C. Then, about 300 grams of VORANOL 3010 polyether polyol obtained from The Dow Chemical Company was added to the solution. The resulting mixture was heated to about 110°C and distilled under vacuum for several hours to separate the DMSO. After removal of practically all of the DMSO, cooling, and then removing vacuum, a fine suspension of polyurethane in polyol was obtained. This suspension did not separate into layers or settle over the next 10 weeks.

Example 2

[[0061]] [0062] A polyurethane foam was prepared using 118 parts of the polyurethane/polyol suspension described in Example 1, 58 parts of VORANATE T-80 toluene diisocyanate from Dow, 1 part of L-603 silicone surfactant from Witco, 0.12 parts of NIAX A-1 amine catalyst from Witco, 0.04 parts of DABCO 33-LV amine catalyst from Air Products, and 0.20 parts of DABCO T-9 tin catalyst from Air Products. These ingredients were mixed together using a Silverson lab mixer, then quickly poured into an 8-inch square box where the mixture foamed, rose to fill the box, then cured to a solid within about 2 minutes. The foam was then further cured in an oven at 120°C for 1 hour. After cooling, a sample of the foam was cut from the middle and tested according to ASTM 3574-95, by which it was determined that the foam had a density of 27 kg/m³, a ball-rebound resilience of 40%, and a 40% CFD value of 2.28 kPa. The cell structure of the foam and the overall quality were acceptable for typical polyurethane-foam applications such as furniture.

[[0062]] [0063] A composition comprising recycled polyurethane-containing material comprises another aspect of the present invention. The composition of the present invention is formed by dissolving recycled polyurethane-containing material in a solvent. The polyurethane-containing material includes, but is not limited to, production scrap including foam trimmings, foam buns and foam skin, changeover blocks, off-specification material, polyurethane powder, molding mushrooms, fabrication scrap and post-consumer waste such as foam from auto-shredder residue. In addition, the polyurethane-containing material could be prime polyurethane material, and need not be limited to scrap or waste materials or foam to be an embodiment of the invention, though these forms of polyurethane have the advantage that they tend to be available inexpensively. The solvent may be any solvent capable of dissolving polyurethane. Preferably solvent may be a polar, aprotic solvent. Examples of polar aprotic solvents include, but are not limited to, dimethylsulfoxide (DMSO), 1-methyl-2-pyrrolidone (NMP), N, N-dimethylformamide (DMF), acetonitrile, tetrahydrofuran (THF), hexamethylphosphoric acid triamide (HMPT) and mixtures thereof, although not all of

these are necessarily suitable for dissolving polyurethane. Most preferably, solvent is dimethylsulfoxide. The polyurethane-containing material and solvent combine to form a polyurethane solution. The formation of the solution is preferably accelerated by application of heat. As would be obvious to one of ordinary skill in the art, there may be some degradation of the polymer in order to break a minimum number of cross links and form the solution.

[[0063]] [0064] A non-solvent, including, but not limited to, polyol, water, acetone, or methylene chloride is combined with the polyurethane solution to form a suspension of polyurethane in a solvent/non-solvent mixture. The addition of a non-solvent preferably takes place under the influence of sufficient agitation in order to cause the precipitation of small particles. The rate of addition of a non-solvent may affect the particle-size distribution or the stability of the resulting suspension. The suspension of polyurethane in a solvent/non-solvent mixture is then heated and stripped to remove solvent leaving a composition of polyurethane in non-solvent. Finally, the composition of polyurethane in non-solvent may be used with the addition of polyisocyanate, water, and other chemicals known in the art to form polyurethane foam.

[[0064]] [0065] The above examples are for illustrative purposes only and are in no way meant to limit the present invention. As would be obvious to one of ordinary skill in the art, the examples of solvents, non-solvents and recycled polyurethane products are set forth for illustrative purposes only and do not contain an exclusive or exhaustive list of available solvents, non-solvents and polyurethane products, recycled or otherwise.

[[0065]] [0066] It should be understood that various alternatives to the embodiments of the disclosed method and apparatus described herein may be employed in practicing the disclosed method and using the disclosed apparatus. It is intended that the following claims define the scope of the disclosed method and apparatus and that methods and structures within the scope of these claims and their equivalents be covered thereby.